





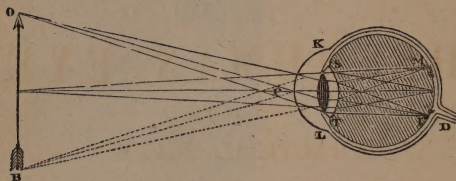


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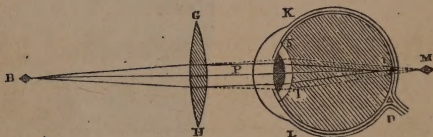
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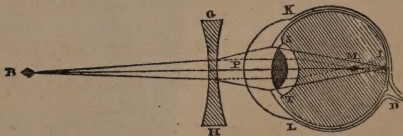
No. 1.—The Perfect Sight.



No. 2.—The Old, or Long Sight.



No. 3.—The Myops, or Short Sight.



*W. E. Adams*  
TO ALL WHO VALUE SIGHT.

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A FAMILIAR TREATISE

ON

THE HUMAN EYE;

CONTAINING

PRACTICAL RULES

WHICH WILL ENABLE ALL PERSONS TO SELECT SUCH

SPECTACLES

AS ARE BEST

Calculated to Preserve their Eyes  
TO EXTREME OLD AGE.

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BY FRANCIS WEST,

(SUCCESSOR TO MR. ADAMS),

OPTICIAN TO HER MAJESTY, 92 & 93, FLEET STREET, AND  
41, STRAND, NEAR CHARING CROSS.

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ILLUSTRATED WITH THREE CORRECT  
DIAGRAMS OF THE HUMAN EYE.

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# CONTENTS.

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	PAGE
Preface . . . . .	7
Introductory Observations . . . . .	9
Sect. I. Structure of the Eye . . . . .	10
The Perfect Sight . . . . .	12
Old, or Long Sight . . . . .	ib.
Myops, or Short Sight . . . . .	ib.
West's Model of the Eye described . . . . .	13
II. Old, or Long Sight. . . . .	14
III. Myops, or Short Sight . . . . .	16
IV. Rules to judge when the sight requires Optical Assistance . . . . .	20
V. Prejudice against Wearing Spectacles . . . . .	22
VI. Proper Choice of Spectacles . . . . .	25
VII. On the Change of Glasses . . . . .	30
VIII. Placing Spectacles on the Head . . . . .	32
IX. Coloured Glasses and Wire-Gauze Shades . . . . .	33
X. Ill Effects of Bad Glasses . . . . .	35
A Word on Advertising . . . . .	39
Testimonials to catch the Unthinking . . . . .	40
The Voice-Conductor Men . . . . .	43
Appendix . . . . .	49



## PREFACE TO THE EIGHTH EDITION.

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EVERY one has a laudable desire to know and employ the best and most effectual means of assisting and preserving that most inestimable gift of Heaven—the organ of Sight. All are sensible that age diminishes its powers, and many find, even in early youth, the necessity of optical assistance, to enable them to discern distinctly the objects by which they are surrounded. The motive which has occasioned me to compile the following pages is, to put the public in possession of facts which have fallen under my own immediate observation during my practice as an Optician. The information here communicated is such as will enable the reader, by a few simple rules founded on experience, to preserve the faculty of vision to a very protracted period of life. Many persons, who view with prejudice and suspicion the advice that is given over a counter, will peruse with attention and interest a short and plain statement like the present. This circumstance, and the very flattering manner in which a large impression of the former editions of this Treatise has been received by the Faculty and by the public at large, have encouraged me to offer some extended remarks, and to intersperse my little book with a few anecdotes that have been related to me, or have come within my own observa-

tion, and such as, I trust, will be found useful in protecting the public from fraud or imposition, and, at the same time, uphold the character of the fair and legitimate tradesman. Some of the hints I have thrown out will be found particularly valuable, especially the one relating to the lately improved Neutral Tint Glasses, and that also connected with the Treatment of the Eyes in Cases of Accident. These hints, while they will enable the patient to obtain relief in common circumstances, will not extend to those instances of serious injury which require the aid of the skilful and experienced oculist.

As ignorance of the real cause of defective vision has been injurious to many individuals, by causing them to err in the choice of spectacles suited to their wants, and neglect or delay in others has produced equally pernicious effects, I have added Diagrams illustrative of the various States of the Eye, whether in youth or age, which render the assistance of spectacles necessary, and which, if consulted, will remove those mistakes and prejudices that have so powerful an effect in retarding their use.

In order to make this little work as extensively beneficial as possible, plain and intelligible rules are given, by which the reader may at once determine the state of his eyes, and the kind of spectacles suitable to his wants.

A

## FAMILIAR TREATISE

ON

# THE HUMAN EYE.

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### INTRODUCTORY OBSERVATIONS.

It is the opinion of the most eminent writers on optics, that no branch of science should be more clearly explained, or more extensively diffused, than that which treats of the various imperfections of the human eye. Many are the diseases to which it is subject, both from natural distortion, bodily temperament, or accident, and which alter or derange its minute and curious mechanism, and thus impair or destroy its powers, such as cataract, gutta serena, inflammation, &c. But of these it is not my intention to treat, since they fall under the province of the experienced oculist; and in such cases the utmost skill of the optician will be exerted in vain, while his interference will not fail, in most instances, to prove injurious until after the eye has been operated upon. It is not till then that his assistance is required.

The object of this little work is to treat of those changes to which the eye is subject when in a healthy state, and which arise from the original formation of the organ, in the Myops, or short sight, and that gradual decay from age which produces the old or long sight, as will be hereafter explained; and both which states it is the peculiar business of spec-

tacles to relieve. To determine the real state of the eyes under these several circumstances, and enable those who are in want of assistance to judge whether spectacles will be advantageous or detrimental, and what kind will best suit their eyes, must ever be considered as a benefit bestowed upon society. Nor is this the only object; it will be also necessary to instruct those who already use spectacles how to discover whether they are properly adapted to their sight, or, on the other hand, calculated to increase those defects they were intended to remedy, by having been improperly chosen.

## SECTION I.—STRUCTURE OF THE EYE.

The eye, which is the noble organ of vision, consists of various coats or humours, of which there are three, of essential importance to its use.

1. The Aqueous, or Watery Humour, which lies immediately under the cornea, and makes the eye externally globular. The colour and consistence of this humour alters with age, as it shrinks and becomes cloudy and less transparent as we advance in years, which is one reason why some persons at an advanced period of life do not reap all that benefit from spectacles which they naturally expect.

2. The Vitreous Humour, which is by much the greatest in quantity, fills the cavity of the eye, and gives it the form of a globe or sphere.

3. The Crystalline Humour is situated between the other two, near the fore part of the eye, and is the immediate instrument of sight; for, being of a lenticular form, it conveys the rays which pass through the pupil to a focus at the bottom of the eye, where the images of external objects\* are by that means formed and represented. Over the bottom of the eye is spread a very fine, curious

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\* Whatever is seen or beheld by the eye is, by opticians, called an object.

membrane, called the Retina, which is an expansion of the optic nerve, upon which the images of objects being painted and impressed, are by that means conveyed to the common sensory in the brain; but this in a manner too abstruse and mysterious for us to understand. (See Anatomical Diagram, by Dr. Hooper, in which every external and internal part of the eye is developed. Published by F. West, 92 and 93, Fleet Street, price 2s. coloured.)

The cause of vision is thus demonstrated by anatomists. When they have removed from the bottom of the eye the outward and thickest coat, called the Dura Mater, they can see through the thinner coats the pictures of objects painted on the retina, in a lively and perfect manner; and these pictures, propagated by motion along the fibres of the optic nerve into the brain, are the cause of vision; for, according as these pictures are perfect or imperfect, the object is seen perfectly or imperfectly. If the eye be tinged with any colour (as in the disease of the jaundice), so as to tinge the picture at the bottom of the eye, all objects will appear tinged with the same colour.

If the humours of the eye decay by old age, so as, by shrinking, to make the cornea and crystalline grow flatter than before, then the light will not be refracted enough; and, for want of sufficient refraction, the rays will not converge at the bottom of the eye, but at some place beyond it, and, in consequence, will paint on the retina a confused picture; and according to the indistinctness of the picture the object will appear confused. This is the reason of the decay of sight in old age, and shows why the sight is capable of being improved by spectacles; for the convex glasses supply the defect of plumpness in the eye, and, by increasing the refractions, make the rays converge distinctly at the bottom of the eye, if the glass has a sufficient degree of convexity. The contrary happens to short-sighted persons, whose eyes are too plump; for the refraction being now too great, the rays converge in their eyes before they come to the bottom, and therefore the picture made on the retina, and the image caused by it, will not be distinct unless the plumpness be taken off, and



the refraction diminished by concave glasses of a due degree of concavity. To understand this more clearly, the reader is referred to the Frontispiece.

### THE PERFECT SIGHT.—NO. 1.

In this figure it will be observed that there is a proper degree of convexity in the cornea (K P L) and the crystalline humour (S T), for conveying the parallel rays to a focus or point at the bottom of the eye in a sound state. Hence every distant object (O B) will have its image (I M) accurately depicted on the retina, and by that means produce distinct vision. From the hinder part proceeds the optic nerve (D), which conveys to the brain the sensations produced on the retina.

### THE OLD, OR LONG-SIGHT.—NO. 2.

On the other hand, when the cornea (K P L) or crystalline (S T) is too flat, which generally happens from age, an object (B) placed at the same distance from the eye as before, will have the rays, after refraction, or crossing in the eye, proceed to a focus beyond the retina, and form an image at (M): to remedy this defect, a convex lens or glass (G H) is applied to the eye, which, supplying the want of natural convexity, causes the rays to converge sooner, by means of which the focal distance is shortened, and the image is then formed on the retina at (I), by which distinct vision is produced.

### THE MYOPS, OR SHORT-SIGHT.—NO. 3.

But if the cornea (K P L), or the crystalline (S T), or both should chance to be a little more convex than necessary, it will cause the rays to converge in a focus before they arrive at the retina in the bottom of the eye. The

image (M) of the object (B) will be formed in the body of the vitreous humour, and will, therefore, be very confused and indistinct on the retina at (I). A person having such an eye is called a myops, in allusion to the eye of a mouse, from its great convexity. To remedy this defect, a concave lens (G H) is applied, which, if of a proper degree of concavity, will throw the focus further back, and the object (B) will be made to fall very perfectly on the retina at (I), and distinct vision will be produced.

#### WEST'S MODEL OF THE HUMAN EYE.



For the purpose of explaining and practically illustrating the above description, the writer has constructed an artificial eye upon optical principles, by which the effects of vision are pleasingly and satisfactorily illustrated; the whole, packed, with full printed description, price 16s. 6d. to 21s. On the front, the form of the eye is painted, a part being left transparent, to represent the pupil; within is enclosed the crystalline or lens. One of these answers for the natural state of the eye; another, less convex, to show the state of the eye when flattened by age; the third, more convex than the first, to represent the condition of the myops, or short-sighted. At the opposite end, or back of the eye, is a grey or semi-transparent glass, to represent the retina.

The two lenses, or spectacle 'glasses, fitted into frames,

one concave, the other convex, are occasionally to be placed before the eye, to show how the imperfect states are remedied by spectacles.

If the artificial eye be turned towards a bright object—say a lighted candle or window, a lively distinct, though inverted picture will be exhibited on the retina or grey glass. If either of the spectacle lenses be now placed or held before the eye the picture becomes confused, showing that when an eye has its due form and figure it has no occasion for spectacles.

To represent the long-sighted or decayed eye, remove the pupil, and put in its stead the less convex lens. You will now find the image very imperfect on the grey glass; but, by applying the convex spectacle lens before the eye, it will cause the rays to converge, and a perfect image will be formed on the retina; thus showing the use of convex spectacles to the decayed sight.

To represent the myops, or short-sight, remove the pupil as before, and put in its stead the more convex lens; this will have the effect of forming the image of objects short of the retina; now, if you hold the concave spectacle glass before the eye, and thus render the rays less convergent, you will make them unite at the retina, and form a perfect image as before; thus showing the use of concave spectacles to eyes in this state.

## SECTION II.—OLD, OR LONG SIGHT.

By imperfect sight is meant an absolute or relative debility, without any opacity or darkness, either in the cornea or other internal parts of the eye, and without any disease of the retina or optic nerve; for imperfect sight is determined when we cannot see objects distinctly in a common light, and at all the usual distances at which they are seen by an eye in a perfect state.

Imperfect sight is occasioned by a confusion in the image formed upon the retina. This happens whenever all the rays that proceed from any one point of an object

are not again concentrated in one, but fall on different parts of the retina.

The natural decay of sight commences in common eyes very soon after the meridian of life, which, according to Dr. Jameson, is about the age of twenty-eight, but according to others about thirty-five. The crystalline humour is clear and transparent, like water, until about the twenty-fifth or thirtieth year, when it begins to grow a little yellow towards the centre, which gradually deepens towards the surface; so much so, that Dr. Petit found the crystalline of a man eighty-one years of age so yellow as to resemble two pieces of fine amber. The commencement and progress of the decay of sight, however, depends on the formation of the eyes, how they have been used, and in some measure on the bodily health of the individual; as it is found by experience that some eyes at thirty require as much assistance as others at fifty, while some persons at fifty see nearly as perfect as they did at thirty. But nature seems to have decreed that after our fortieth year the most perfect eyes shall no longer have the powers they possessed in youth, of seeing objects at different distances equally distinct, and we are obliged to remove the object further from the eye; it is then that the eyes require optical assistance, and then it is we have to overcome the prejudice against wearing spectacles. It is impossible to prevent the decay of sight arising from age or partial disease; yet, by good management and prudence impaired sight may be improved, and the decay of the organ considerably retarded.

By the old, or long-sighted, distant objects are seen distinctly, while the near ones appear confused; and in proportion as the defect increases the near objects become more indistinct, until it is found impossible to read common-sized print without the aid of glasses. This is occasioned by the image of the object not falling upon the retina, but beyond it. (See Diagram, No. 2.) This defect is removed, as before observed, by convex glasses; and care should be taken that the glasses are of the most perfect description, not magnifying too much, but render-

ing the objects distinct, and the same size as they really are, at twelve\* or fourteen inches from the eye.

It may be observed, that mariners and farmers are generally long-sighted. This may be attributed to their being accustomed to look at distant objects. There are instances of mariners being able to discover a speck on the horizon many miles distant, who, nevertheless, could not read a common-sized print without spectacles. Thus it is evident that the habit of gazing at objects very near or very distant injures the sight, and should be avoided as much as possible.

### SECTION III.—MYOPS, OR SHORT SIGHT.

The short-sighted see distant objects confusedly, but near ones distinctly. Their sight, therefore, being defective with respect to distant objects, can only be improved by the assistance of concave glasses. By this means those whose sphere of vision scarcely extends beyond two or three feet, are enabled to distinguish objects at a considerable distance. The concave lens produces distinct vision, by causing the rays to diverge more and unite at the retina, instead of meeting before they arrive at the bottom of the eye. (See Diagram, No. 3.) The focal distance varies very considerably among near-sighted eyes. All persons who can only see objects distinctly within the distance of twelve inches from their eyes may be considered near-sighted, and it is in some few instances less than two inches; but glasses are made so concave as to assist these extreme cases. In some cases of near sight, the view of objects is not perfect at all the varieties of distance with one power of glass, but combined with the internal adjustment before described in the structure of the eye, it is nearly so; and with two

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\* Twelve inches is considered the natural focus of a sound eye.

or three varieties of power the sphere of vision may be indefinitely extended.

Near-sightedness generally comes on at an early age, and is more common in the higher than the lower ranks of life. This may probably arise from the circumstance that the gentry are generally brought up at college, or at such sedentary employments as to require close application; the consequence is, they become short-sighted, frequently from the habit of looking at very near objects. This we also find among artisans, particularly engravers, jewellers, and watch-makers, where the employ is sedentary, and the work of a fine description.

Many eminent writers on optics inform us that short-sighted persons see distant objects best in old age, and that as they advance in life the focus of their eyes grows longer, and consequently they have the most lasting sight, as ultimately they will be enabled to throw aside spectacles altogether; but this I have not found in my practice. I have invariably found those that were short-sighted in their youth continue so through life; but when they have judiciously used their eyes to spectacles that do not diminish too much, but give a distinct outline of objects, their sight has not varied considerably.

One thing further is certain, that where persons persist in the use of a single eye-glass, they are obliged to use a much deeper number than where a pair is adopted in the form of spectacles; for instance, I have found that when persons see well with No. 2 concaves in the form of spectacles, they frequently require No. 4 or 5 as a single glass; and even with that objects are not so perfect and distinct as with a pair of a lower number.

It appears that short-sightedness is hereditary; as it generally happens where the parent is short-sighted that some of the children are so likewise. I know a family myself, where the father has a short-sight and the mother a long one. They have a large family; the girls are all near-sighted, and the boys all long-sighted.

As the application of glasses will in some cases confirm, and in some even induce, the habit of short-sightedness,

it should be fully ascertained before spectacles are applied ; and when the party is found to be short-sighted they cannot be adopted too soon, although much may be done to prevent the formation of the habit in youth. This may be often effected by out-door exercise, and by directing the attention to the most attractive objects placed at a distance ; and all close study and sedentary employment should as much as possible be avoided.

Mr. Ware, in his paper on Vision, observes, " Short-sightedness generally commences between the ages of ten and eighteen. The discovery of it most commonly arises from accident, and at first the inconvenience it occasions is so little, that it is not improbable the imperfection would remain altogether unnoticed, if a comparison were not instituted with the sight of others, or if the experiment were not made of looking through a concave glass.

" It should be remembered that for common purposes every near-sighted eye can see with nearly equal accuracy through two glasses, one of which is a number deeper than the other ; and though the sight be in a high degree more assisted by the deepest of these than by the other, yet on its being first used, the deepest number always occasions an uneasy sensation, as if the eye was strained ; if, therefore, the glass that is most concave be at first employed, the eye in a little time will be accommodated to it, and then a glass a number deeper may be used, with similar advantage to the sight ; and if the wish for enjoying the most perfect vision be indulged, this glass may be soon changed for one that is a number still deeper, and so in succession, until at length it will be difficult to obtain a glass sufficiently concave to afford the assistance that the eye requires."

Mr. G. Adams has noticed the fact, that he does not know a short-sighted person who has had occasion to increase the depth of his glasses, if he commenced using them in the form of spectacles ; whereas he can recollect several instances where those have been obliged to change their concave glasses repeatedly for higher powers, who have been accustomed to apply them to one eye only. The



advantage of a pair of spectacles over a single glass is sufficiently obvious, as objects appear brighter when seen with both eyes than when viewed only with one.

In the choice of glasses for the short-sighted, no precise rule of a general nature can be laid down, there being no stated progression that can guide the optician, or lead him to recommend one glass in preference to another. The whole must depend on the observation of the short-sighted themselves; but I would remark, that they should select the shallowest concaves that enable them distinctly to read the names at the corners of the streets, and which give a decided outline to objects that do not exceed forty feet distance, without rendering the vision dazzling or glaring; the glass which does this is of too deep a number.

Mr. Ware observes on this subject, that short-sighted persons may adopt the following rule in determining the concavity of their glasses for reading, when unable from distance or any other cause to suit themselves at the shop of an expert optician. The rule is this: multiply the distance at which the person reads with ease (which in our author's case, with his left or best eye, was five inches), by that at which he wishes to read, which may be stated at twelve inches; divide the product (sixty) by seven, the difference between the two, and it leaves nearly nine inches for the focus of the concave glass that shall produce the desired effect. This glass answers to that sold under the name of No. 6; and this is a double concave glass, ground on a tool of eight inches radius on one side, and eleven inches on the other, the mean between which is nearly nine inches.

After persons have used the same glass for some years, and it is cracked or broken, it is often extremely difficult to make them think that any new one suits so well as the old one which they have been long in the habit of using; therefore, pebbles are especially desirable for the short-sighted, as they are less liable to break, and never scratch.

I have been thus minute on short-sight, from its great prevalence, and the necessity there is for optical assistance

for the young as well as the old; but the short-sighted have this advantage, that they can see to write much smaller, and with much less light than those with an eye of just conformation.

The following curious phenomena, which always attend the short-sighted, are extracted from Porterfield, vol. ii., p. 55.

1. "In reading, they generally hold the book towards the side of the head, that it may be sufficiently illuminated, and not darkened by the shadow of their head.

2. "No object being distinctly seen but what is very near, and in order to see it with both eyes their axes must be converging, which situation being both painful and laborious, they are often obliged to turn away one eye, from which proceeds a double vision, which in reading frequently compels them to shut one eye, that they may avoid the confusion it occasions; but this is remedied by the adoption of concave glasses, as they extend the field of view, and enable the party to read at a greater distance, and use both eyes to advantage." Cases of this kind I have frequently met with; it is more particularly observed where the party is very short-sighted.

#### SECTION IV.—RULES TO JUDGE WHEN THE SIGHT REQUIRES OPTICAL ASSISTANCE.

The following rules apply to the old, or long-sight, and will enable every one to judge when their eyes may be assisted and preserved by the use of spectacles.

1. When we are obliged to remove small objects a considerable distance from the eye in order to see them distinctly.

2. If we find it necessary to use more light than formerly, as for instance, to place a candle between the eyes and the object.

3. If on looking at and attentively considering an object, it becomes confused, and appears to have a kind of mist swimming before it.

4. When the letters of a book seem to run one into another, and hence appear double or treble.

5. If the eyes are so fatigued by a little exertion that we are obliged to shut them from time to time, and relieve them by looking at other objects.

When all these circumstances occur together, or any of them separately, it will be necessary to seek assistance from spectacles, which, if judiciously adapted to the true state of the eyes, will ease them, and in some degree check their tendency to grow flatter; whereas, if they are not assisted in time, the flatness will increase considerably, and the eyes be weakened by the efforts they are compelled to exert.

In addition to these rules, and to prove the necessity of taking to spectacles to assist impaired sight, I would earnestly call the reader's attention to the following facts:—

1. "There is a point, or distance, at which each person severally sees a small object more distinctly than at any other. This distance is the focal length, OR (as it is commonly called) the focus of that person's eye. There is also a *gradual increase* in this focal length as we advance in life, which produces the necessity of a corresponding increase in the distance of the paper from the eye in reading; but so perfect is the gradation of nature, that this increase of distance is effected, as it were, involuntarily; and therefore it goes on for several years without being even suspected by ourselves, although very obvious to others.

2. "The distance of the paper from the eye being increased, the size of the print is diminished in the same proportion, and the reader is compelled to make the same effort as if he had actually so much smaller print to read. The mischief of this increased effort is evinced by the painful sensation it produces, and which is frequently such as to compel him to *desist from the employment of a faculty* affording the most abundant source of amusement and instruction.

"This increased effort being *never* called for until the

sight begins to suffer *some diminution* of its powers, the demand is made at the very time when the eye is becoming *less capable* of answering it, and the diminution of capacity requiring a greater amount of exertion, the reaction of these effects upon each other accelerates the progress of decay, and, in consequence, the energies which should be treasured up as the most valuable of our possessions, and most necessary to the comfort of old age, are spent and dissipated in painful and ineffectual efforts.

“Happy would it be for us did we duly estimate the value of a gift which, having the power of *preserving* and *perpetuating* to us this *desirable distance* at which we see best, prevents the demand for these painful and ineffectual efforts, and all the mischievous consequences resulting from them. *This is the proper business of spectacles.*”\*

## SECTION V.—PREJUDICE AGAINST WEARING SPECTACLES.

“Many apparently formidable objections have been urged against the use of spectacles. One of these is the aversion many persons have to discover their age, which they conceive this will infallibly do by indicating the decay of their sight: though this objection must be allowed to be absurd, when the distance at which they are compelled to hold small objects is a sufficient indication of the decay of vision, independent of the great injury sustained by straining the eyes.

“Another objection with many is, the opinion that if once they take to spectacles, they cannot do without them; and although this is not fair matter of complaint against anything really useful, yet, as it operates to deter many from beginning who have great occasion for them, it may be proper to examine into the ground of this complaint, as it is never made by those who begin betimes;

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\* Bates's Tract on Spectacles, p. 4.

neither can it be made by any other persons who are *properly suited* with spectacles, because the progress of decay being retarded from the moment such persons begin to use them, they are really more *capable* of doing without them than they would have found themselves, after the same interval, if they had not been so aided.”\*

It may also be observed, that it is not uncommon for a person to state that a friend of theirs, at the age of sixty-five, never wore glasses, and that their sight is as good as in their youth; and this they attribute to their abstaining from the use of spectacles, thus leading others to suppose that the very act of adopting spectacles will cause the deterioration of sight. This never is the case where the maxims here laid down for the choice of spectacles are adhered to; and when I have heard any one boast in this manner, I have always put such questions to them as to ascertain what has been the general employment of the individual, and I have invariably found that they have been farmers, coachmen, or connected with some occupation which did not call upon them for accuracy of vision. We might as well expect that a person at sixty-five would be as plump and blooming as he was at sixteen years of age, as to expect the sight equally perfect. If we ask any one who has been constantly employed on neat and delicate work, we shall find the reverse. A man does not want spectacles to plough in; but it is very different where the eyes and mind are engaged, for several hours daily, over small print or fine work. But, at the same time, it should be observed, that as our sight becomes imperfect for near objects, it is more perfect for those that are distant. This is occasioned by the shrinking of the humours, as before observed, and is the reason why elderly persons, without the aid of spectacles, can see distant objects more perfectly than the young, because the focus of their eyes having grown longer, the distant object is more perfectly reflected on the retina; and it may be

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\* Bates's Tract on Spectacles, p. 4.

stated, that so far from individuals being benefited by refraining from spectacles, instances on the contrary, have occurred of those who, having used spectacles betimes, could see to read without them even in old age.

When persons first feel the necessity for calling in optical assistance, they generally apply to the optician for a reading-glass, conceiving that to mount a pair of spectacles would be advertising their age. This is perfectly absurd; it is sacrificing convenience to vanity, and is highly injurious to the sight, and at all times hastens the evils it is intended to retard; for by habitually putting a glass to the same eye, and leaving the other to wander, the sight of the idle eye becomes of a different focus to the one which has been employed, and which is often irreparably injured. It is obvious to every one, that objects appear brighter when seen with both eyes than when viewed only with one; by using two eyes the sight is rendered stronger and the vision more perfect, for, as each eye looks on the same object, a more forcible impression is made, and a livelier conception formed by the mind; therefore, both eyes should be possessed of the same advantage, to render the vision distinct. There is still another objection to the use of a reading-glass,—the eyes are considerably strained by the motion which arises from the unsteadiness of the hand and the motion of the head; and the eye, in endeavouring to reconcile itself to each change, is kept in continual agitation. To these we may add the dazzling glare and irregular reflection from the surface of the glass, which fatigues and often injures the sight.

Those who, for a time, obstinately determine to persist in the use of a reading-glass, are at last obliged to take to spectacles of a much greater magnifying power than they would have done had they taken to a pair of hand-spectacles, which are much lighter, and more elegant in appearance, many of them being made to fold up like a single eye-glass when suspended by a riband round the neck.

## SECTION VII.—PROPER CHOICE OF SPECTACLES.

The choice of spectacles is one of those acts which cannot be performed by proxy; the sight cannot be properly suited, unless

“ Every eye negotiates for itself.”

The peculiar conformation of the eyes differs most materially in different persons, and it is just as impossible to guess what spectacles will suit another person, as it is to tell what tunes are most delightful to his ear.

Nothing can be more erroneous than the common notion that a glass of *a certain focus is calculated for a certain age*; yet this vulgar error has been productive of irreparable injury to the eyes of thousands, since it is well known to every practical optician, that a boy of fourteen will sometimes require spectacles of as much magnifying power as a man of sixty.

In this place I cannot give the reader better directions than those of Dr. Kitchiner, who says,—

“ A part of the furniture of an optician’s shop is a book of rather small print, which is presented to those who come to choose spectacles, and such glasses are very properly recommended as will enable the person to read it at the same distance, and with the same ease, that he could before his eyes were impaired—that is, through which the letters appear perfectly distinct, and of their natural size.

“ No spectacles properly suit the eyes which do not produce ease; if they fatigue and heat the eyes, we may safely conclude that they are either ill made, or not properly proportioned to our sight.

“ *With glasses not convex enough*, or, according to the common expression, which are *too young*, you will not see clearly, unless the book is placed so far from the eyes that the letters cannot be seen distinctly.

“ *With glasses too convex, or too old*, you will be obliged to bring the book nearer to your eyes than you did when



your sight was good, and the letters will appear larger than they really are. Spectacles which magnify too much will strain the eyes even more than those which do not magnify enough ; and, instead of retarding, will accelerate the decay which age brings on.

“ When persons apply to an optician for spectacles to read or work with, they should clearly understand that the objects for which such spectacles are solely calculated are not placed more than twelve or fourteen inches from the eyes—that is, whether reading, writing, sewing, &c.; for there seems to be a natural impulse in most persons, that after a printed book has been handed to them for trial to read, they will presently look off to some object on the other side of the room, or across the street, and say ‘ Why now, I can see well enough to *read* with these glasses, but I cannot discern what that word is over yonder door;’ and the optician has oftentimes no little trouble to convince them that such spectacles are not intended to show objects at a distance, to see which their sight is as strong as ever, and, in fact, they can see distant objects best with their naked eye.

“ A person in business, with whom I was acquainted, began to want the common optical assistance, especially for writing, when about forty years of age. The glasses he first used were of thirty inches focus, but he soon found them useful to look at the labels on the parcels of muslins arranged on the shelves around his shop. After a while he found it easy and convenient to keep them on during the day, to serve his customers, or occasionally to look along the street for a passing friend. Another pair of deeper focus was a repeated necessary consequence, for the mechanism of his eyes naturally formed themselves to the power of the convex glasses, and his eyes still growing older, and strained by the strong excitement, at last would not perform their office distinctly, unless assisted by spectacles of eleven inches focus, so that he became literally half blind in the course of about ten years.

“ This is not a very singular but a very common case, and one of the most frequent causes of irreparable injury

to the eyes, and is one of the first cautions to be given to those who are choosing convex spectacles."

The following fact may not be unimportant to the reader, as it illustrates the impropriety of young people using bad glasses, and of great magnifying power:—A young woman, about twenty-four years of age, applied to me for a pair of spectacles. To my usual inquiry, if she had ever worn spectacles, she replied in the negative. I then took great pains in my endeavours to suit her, and after trying spectacles from forty inches focus down to ten inches, she said, "I can see in these," fixing on a pair of nine inches focus, "a little." I expressed my surprise, and said she must have used spectacles, or she could not have seen to read or work; but still persisting she had not, after some hesitation she observed, "To be sure, sir, I sometimes put on my grandmother's, which she purchased of a Jew pedlar; but then it is only when I have a little fine work and marking to do; and it is only now and then, for I assure you I never had a pair of spectacles of my own."

It is a common practice with persons who find their eyes begin to fail, to take a pair of spectacles belonging to a father, aunt, or some old friend of the family, to ascertain if they can see with them, and if, by chance, they discern objects much larger than they really are, they take it for granted that they suit them admirably. By this injudicious practice they strain the eye, and thus inevitably hasten the decay of its powers. It may truly be said, that the very worst legacy a friend can leave is a pair of old spectacles, since it is an inducement to the young to try them *for experiment*, frequently to the irreparable injury of their sight.

Though in the choice of spectacles every one must finally determine for himself what are the glasses through which he obtains the most distinct vision, yet some confidence should be placed in the judgment of the optician of whom they are purchased, and some attention paid to his directions.

"By trying spectacles the eye is fatigued, as the pupil

varies in size with every different glass, and the eye endeavours to accommodate itself to every change that is produced. Hence the purchaser often fixes upon a pair of spectacles not the best adapted to his sight, but those which seem to relieve him most while his eyes are in a forced and unnatural state, and, consequently, when he gets home and they are returned to their natural state, he finds what he has chosen fatiguing and injurious to the sight.”\*

Let it always be remembered, that spectacles are intended to reinstate the eye as much as possible in its original and natural focus, and not to make objects appear larger than they really are. Magnifying power is not the point that is most to be considered in the choice of spectacles, but their conformity to the sight, enabling us to view with ease objects as near their natural sizes as possible. As spectacles are intended to remedy the defects of sight, it is also most important that the lenses be of the most perfect spherical truth; and it may be deemed an unspeakable happiness that in fine glass and pebbles we have a substance so analogous to the humours of the eye, that it renovates the sight of thousands who would otherwise be labouring under the effects of partial blindness.

Preservers are those kind of glasses that are required when first taking to spectacles, and are from twenty-four to forty inches focus; and, being within the range of vision in common eyes, may be properly called *preservers*, as, if employed in time, they retard the decay of the sight; though no one should take to them before they are wanted. In this we must make use of our own judgment by the rules laid down.

“It is very common for persons, after they have worn spectacles of thirty-six inches focus for a year or two, to complain that their glasses are not of the right focus, for, when they do not wear them, they do not see so well as they did before they used them; therefore they cannot be *preservers*.”

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\* Mr. G. Adams on Vision, p. 96.

In reply to this objection, I would observe, that by the use of spectacles their sight is reinstated and restored to its natural focus. When they take them off the sight returns to its decayed state, and the imperfection is most sensibly felt. But they should consider that, before they took to spectacles, they were compelled to use considerable exertion in reading, such as placing the book behind the candle, removing it to a greater distance, &c.; consequently the inconvenience of which they complain does not arise from any defect in the spectacles, but, on the contrary, they have given the sight such assistance as enables them to enjoy the pleasure of reading with ease and comfort, which before they were unable to do without great exertion.

“After the process of deterioration has been proceeding for several years, it would be wonderful if it had not made some perceptible progress. It is as ridiculous to expect that it is in the power of an optical instrument to entirely prevent the eye undergoing that inevitably certain, although almost imperceptible, change that accompanies the advance of age, as it would be to suppose that art can prevent the failing of any of our other faculties.”\*

One of the great evils attending the use of spectacles is the impropriety of many persons, who, after they have used their glasses for some time, and finding the need of an increased power, have recourse to the use of two pairs of spectacles—that is, one pair placed over the other, and by that means produce a great magnifying power, which they think so very desirable. Now, this is the sure way to undermine and ruin the strongest sight; for it should be clearly understood, that when their glasses fail to be as useful to them as they were at first wearing them, then is the time to exchange them for the greater power, but this should be done with prudence and discretion. In most cases the next degree will be found sufficient, for it has been stated in the former part of this treatise, that the

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\* Dr. Kitchiner on the “Economy of the Eyes,” p. 31.

cause of indistinct vision in the long sight is occasioned by the shrinking of the crystalline lens; and this shrinking, or flatness, as it is termed, is made up by the convex spectacle-glasses. From this it must appear evident, that the nearer we can approximate to nature by these artificial means, the nearer we arrive to perfection; and this can only be done by degrees, not by violent transition from a magnifying power which formerly suited the eyes, to one of double the degree. I could mention many cases where the eyes have been materially injured by this abuse.

From what has been stated above, it must be obvious that spectacles which magnify too much are injurious to the sight, and persons will do well to avoid selecting such as do so. This may be done by observing the distance at which they used to read when their sight was good, which, in general, is at about twelve inches; and those spectacles which render the object distinct at that distance of its natural size may be said to suit, and no eye may be generally considered to require optical assistance until it exceed that distance, or some painful sensation or other difficulty is previously felt; and to remedy these inconveniences is the business of spectacles.

## SECTION VII.—ON THE CHANGE OF GLASSES.

When you find a recurrence of the defects of vision which first induced you to take to spectacles, and your glasses fail to be as useful as at first, your eyes require the *second sight* of thirty inches focus. It is a frequent habit of many persons, after they are well suited with spectacles, to indulge themselves with a higher number than they absolutely require. Thus, after using for two or three months glasses Nos. 1 and 2, they increase them to Nos. 4 or 5. By these frequent changes, persons often use deep glasses, when shallow ones would answer the purpose. This habit applies to long as well as short sighted persons; for it may be said by spectacles as by medicine, you may keep increasing the dose until it loses its effect. Not that I

would be understood to recommend persons not to exchange their glasses for those of greater power occasionally, but merely hint to them not to change until it is absolutely necessary. Some few persons, from a motive of economy, think they cannot have the glasses of their spectacles of too great a magnifying power, and that the more they magnify, the longer they will last; but this is a mistake, arising from ignorance in the science of optics. The pupil of the eye contracts and dilates, according to the focus of the glass put before it; and after it becomes accustomed to a great magnifier, it is no more and no longer assisted by it than by one of less convexity.

There is another species of abuse which many persons subject their eyes to, and that is having a great variety of spectacles of different focuses, or magnifying power. The consequence is, that they first wear one, and then the others, perhaps in the same hour, till at last they get the pupil of the eye so agitated, and the general system in so irritable a state, that it is with the greatest difficulty they can see minute objects at all. They will frequently observe, "I have got a great many spectacles, but I can see in none of them now." This is all occasioned by this infinite variety, and too frequently the bad quality of these spectacles. Now, as a rule, I would recommend persons to choose a pair of spectacles that renders the object distinct, and as near the natural size as possible; where they are in possession of two or three pair, not to have more than one sight difference between them; and by candle-light only to use the highest power; for if we take to spectacles as it were perchance, we must not only get an article of bad quality, but enfeeble the eyes by its adoption.

I consider the best method for persons who reside at a distance, and cannot purchase for themselves, to obtain spectacles adapted to their sight, will be by writing, stating if ever, and how long, they have used glasses, and at what distance they hold the object for distinct sight: or, what is more certain, to send the old glass they have been accustomed to wear, and also to state in what particulars it fails to be useful for the purposes intended;

this will generally be found a sufficient guide for the optician.

In the selection of spectacle-glasses great care should be used in examining them, and the first point of importance is the goodness of the material of which they are formed; this should be free from all veins or small bubbles; for if one of these occur in the portion through which we look, it will greatly impair the eyes. The figure of their surfaces should be perfectly spherical; for if they are curved more in one direction than another, they will injure the sight. The polish should be clean, and free from flue, which often arises from the manner in which they are polished on heterogeneous surfaces, producing what is technically termed a curdled glass; and lastly, they should never be worn after they have become scratched.

Those persons who may favour F. WEST with their commands may depend on being suited with spectacles, the glasses and pebbles of which are ground with accuracy on brass tools of the most perfect spherical truth, under his immediate inspection.

## SECTION VIII.—PLACING SPECTACLES ON THE HEAD.

In the proper use of spectacles there is no circumstance of more importance than their position on the head. They should be worn so that the glasses may come as close to the eyes as possible, without touching the eye-lashes; they should also be placed so as that the glasses may be parallel to the paper when held in an easy position. To accomplish this, let the sides of the spectacles bear upon the swell of the head, about midway between the top of it and the ear; the eyes will then look *directly* through the glasses, instead of *obliquely* through them to the paper. In those cases, still so numerous, where persons place the sides of the spectacles in contact with, or very near, their ears, they produce a distorted image on the retina. When the eyes are not directed near the centre of the spectacles

glasses, the obliquity of their surface to the rays will be increased, so as to occasion a confused appearance of the object. A great portion of this confusion is removed in the spectacles now usually made, when compared with those formerly employed, whose size being very large augmented the imperfection; for it may be remarked, that when objects are seen through spectacle-glasses, no more of the glass is employed at one view than a portion equal to the size of the pupil of the eye; this on an average may be reckoned at one-eighth of an inch in diameter. Thus we see how small a portion is used for the purpose of vision; but as it would be tedious to require the eye always to look through a small aperture, the glasses are left of a sufficient size to admit of a moderate degree of motion, and, as we require a greater latitude horizontally than vertically, their figure is made of an oval form. The sides of the spectacles should also be placed at an equal height upon the head, and the hands being applied to the *points* of the sides, will generally direct this equal height, as well as allow of their opening to their full extent without injury.

#### SECTION IX.—COLOURED GLASSES AND WIRE-GAUZE SHADES.

Spectacles with *green glasses* may be generally considered injurious to the sight, particularly those of a dark colour; for, though it is an agreeable colour to look *at*, it is a bad one to look *through*. All objects when viewed through green glass appear of a muddy yellow, tinged with gloomy green. It may also be observed, that all deep coloured glasses increase the labour of the eyes, and bring them into so weak a state as to unfit them for all the ordinary purposes of life. If persons feel distressed from the light, let them shade the windows of their apartments, and have the bed-furniture of a green colour.

The best description of shade for the eyes is the very pale blue glass, usually called *Adams's blue*, as he was the



inventor. This medium reduces the yellowness of artificial light, and makes it more nearly resemble that of day. When blue glasses are adopted, they will only be advantageous as screens or shades for the eyes, and should never be worn of the deep convex or concave form. For this reason: the former will be thicker in the middle than at the outer edge, and, consequently, will be more opaque in that part; and the outer edge will collect a degree of false light, and distress the sight. The concave will of course be the reverse; this form will be thin in the middle, and, consequently, they will be almost colourless in the centre, while the edges will be almost opaque. Uniformity is our best criterion; and I consider that blue glasses should not be worn when the colour is not equal over the whole surface.

The light we meet with on the sea-coast, reflected directly towards the eye from the white cliffs, sands, water, &c.; also, white walls, white window-blinds, when near, or fronting the eyes, particularly in sunshine, should as much as possible be avoided; also, in hot climates, the blue parallel glasses will be found advantageous, as they modify the intensity of the light. I would recommend blue glasses also for walking, or reading by candle-light. Those of No. 0 concave, or half number, will be generally found most agreeable to the eyes for viewing distant objects.

I would also caution the reader to abstain from reading in a bad light, as likewise in the sunshine, or the glare of a strong light, as all extremes are detrimental to the sight. In short, an equality or uniformity of light should at all times be studied; and here I would recommend the sinumbra lamp to read by, as producing a more equal and uniform light than any other of the artificial kind.

Within the last twelve months we have succeeded in procuring glass of rather an inky blue, or crape colour. This is called neutral tint, and has been found particularly desirable for spectacles, operating as shades for weak eyes. Several gentlemen of high repute as oculists were formerly in the habit of recommending crape spectacles, but

since the introduction of the above kind of glass the crape has been discontinued, and I may say, without fear of contradiction, the neutral tint of glass is now universally approved and recommended.

For riding, driving, or travelling, I have contrived various kinds of spectacles, to protect the eyes from wind, dust, &c. ; railway-guards, and my *Correctus Speculatus*, suiting admirably for persons taking violent exercise. There are also many other kinds of spectacles so constructed as to protect the eyes from any external injury.

## SECTION X.—ILL EFFECTS OF BAD GLASSES.

As the sight is the most exquisite and necessary of all our senses, every help to relieve it, when deficient or decayed, must be proportionably valuable. On this account it is that spectacles have always been deservedly esteemed a great blessing to mankind, since they not only rectify the imperfections of young eyes, but recover and renew the sight that has been impaired and diminished by the natural decay of age, and by this means render that part of our lives happy which we must otherwise have dragged on in a dim, inactive, and disconsolate manner to our graves.

But whoever attends to the nature of this excellent invention, and understands the principle on which it depends, will at once be convinced how injurious the common spectacles that are sold by hawkers and sale-shops must be to the organ of sight.\* The glasses of these

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\* It is a well-known fact that there never was so much glass made as at the present time, and never so little fit for optical purposes. The optician cannot procure good glass to any extent, pay what price he may. If the glass maker is complained to about the bad quality of his glass, his answer is that it is very good for domestic purposes, viz., bottles, drinking-glasses, &c. The plate and crown

common spectacles are generally of the most inferior quality as to material; in the grinding of them the manufacturer is obliged, for the sake of low prices, to polish a great number together by a very quick process, which utterly destroys the true spherical figure of the lens, so that an imperfect picture of the object is reflected on the retina; by which means the eye becomes enervated, weak, and watery, and the sight, at the same time that it appears assisted by these glasses, soon becomes vitiated and impaired by insensible degrees. The position of these glasses, or manner of placing them before the eyes, in common spectacles, is such as to occasion the rays of light coming from the object we look at to be very irregu-

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glass-maker says, it answers well for looking-glasses, windows, &c., and that is all he cares about; as for the optician, his consumption is so small, and he is so particular, that the glass-maker cares not to serve him. Some members of the Royal Society were for a time trying their skill in making glass for optical purposes, but without success; some time back I was shown several pieces, which were as bad as they could be. The only excellent glass that has of late been procured for optical purposes, has been made in Switzerland, by Aimé Guinard. This person and his family appear to possess the exclusive art, and probably the material, for making superior glass, although I am given to understand they are not always certain of producing a good article. I may also add that the glass made by the above-named gentleman is, of course, very high in price, as it is necessarily difficult to procure. For spectacles, therefore, we have recourse to crystal or Brazil pebbles. This, when it is slit with care and attention, and worked by the experienced optician to various concave and convex forms, is decidedly the very best substitute known, as it is more analogous to the crystalline lens, receives a higher polish, and transmits more light. These I conceive to be best, especially at a time when there is so much difficulty in procuring good glass.

lar, and imperfectly refracted upon the eye, and the vision of objects it produces is accordingly bad. They are therefore, not only unfit for answering the noble purposes designed, but are in reality very prejudicial to the eye; and this I find by the current testimony of hundreds of persons, who, from using these glasses, render their eyes so debilitated, and their system so nervous, as at times to render it impossible for the experienced optician to afford relief. And, in addition, I have to inform the bargain-hunter that he need not ruin his visual organs by purchasing spectacles of the hawker or salesman, under the impression of buying cheap, as he may at all times purchase a pair of glasses for 2s. of the first optician in London, or a pair of good spectacles complete for 3s. 6d.; and I would impress on his mind that bad glasses for the eyes are like improper medicine to the stomach; the one enfeebles the sight and renders us partially blind, while the other undermines the constitution.

“Another effect of the common spectacles is, that of producing, in time, spots and callosities in the *cornea* and *crystalline*. In that state, people imagine, when they look towards the sky, that they perceive minute bodies floating in the air; they endeavour to drive them away, but their efforts are vain, for these are nothing more than minute parts of the *cornea* and *crystalline* which are dried up, or hardened by the too great quantity of light which bad spectacles have permitted to pass into the eye.

“These callosities prevent one portion of the rays of light from falling upon the retina, whilst other rays mark the image of the object thus apparently with dark spots, while at the same time the rapid vaccillation of the axis of the eye produces an appearance of numberless quick moving objects.”

Sir John Pringle, in his *Six Discourses*, says, “The discovery of optical instruments may be esteemed among the most noble as well as among the most useful gifts which the Supreme Artist hath conferred on man; for, all admirable as the eye came out of the hands of Him who made it, yet he has permitted this organ to be more as-

sisted by human contrivance than any other of the animal frame, and that not only for the uses and comforts of common life, but for the advancement of natural science, whether by giving form and proportion to the minute parts of bodies that were imperceptible to the unassisted sight, or by contracting space, and, as by magic art, bringing to view the greater objects of the universe, which were rendered invisible by their immense distance from us."

Admirable as these contrivances are, the discovery of spectacles may still claim the superiority, as being of more universal benefit and extensive use. They restore and preserve to us one of the most important and valuable of our senses; they enable the mechanic to continue his labour, and earn a subsistence by his hands, to extreme old age; by their assistance the scholar pursues his studies and recreates his mind with intellectual pleasures, and thus passes away days and hours with delight and satisfaction, which might otherwise have been spent in melancholy, or wasted in idleness.

I have, in a previous part of this work, stated the dreadful effects resulting from the use of improper or bad spectacles; and I have been led to the foregoing remarks by my daily experience and observation of the taste of the times. I have ascertained that, with many persons, there is only this opinion, that the smaller the cost of any article, the cheaper it is considered; while it is well known that the very reverse is the fact, and that the low prices do not constitute cheapness. To make spectacles, or any instruments, excellent, they cannot be manufactured in large quantities; they, moreover, require a skilful hand and great attention in the workman, and thus it is obvious that a fair remunerating price must be paid, but certainly not an extravagant overcharge; and I do believe that, by a little consideration, the reader may obtain excellence, and, at the same time, avoid either extreme.

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NOTE.—I would more particularly call the attention of my readers to the article of spectacles, because it is most

## A WORD ON ADVERTISING.

It was formerly considered derogatory for tradesmen to advertise. The man who did so was considered a puffer, or person who wished to put off some of his spurious wares. But the taste of the times is changed; it has now become fashionable, or, at least, so common, to advertise, that unless you do, some specious pretender starts up, and, by holding out some pretended advantage to the purchaser, robs the legitimate manufacturer of his trade, and thence his fair share of public patronage. I have myself been asked by a thinking and intelligent customer, now and then, "Why do you advertise? I wonder you do so; a man so well known as you are can have no occasion." I candidly confess it is a system which I dislike, but I am compelled to go with the times. If I were not to do so occasionally, I should find myself overlooked, in favour of those cunning knaves who create a new name for that which was made a century ago, or, by keeping a specious paragraph always before the public, endeavour to make them believe they possess some particular art by which an unheard-of advantage is to be derived.

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important that the pebbles or crystals should be not only of the first-rate quality\* as to material, but that great attention should be paid to their spherical form, true figure, and accurate fitting; for, when the eyes are injured by the adaptation of bad or improper glasses, they seldom, if ever, recover.

\* See article on glass for optical purposes, p. 36.

Formerly a man kept to his trade. If a linendraper, he sold linendrapery; if a woollen-draper, he dealt in woollen goods; if a silversmith, he disposed of silver goods only; and so on. But now, unfortunately, almost every shop-keeper is a huxter, or dealer in wares of all sorts, pretending to be enabled to sell at half the price of his neighbour; while, in point of fact, his goods, like the razors "made only to sell," are worthless. The manufacturer or workman must be paid for his time, labour, and material; and it is not in the power of Jack-of-all-trades to sell at less than the original and legitimate maker. I am led to the foregoing remarks by the specious advertisements which daily appear; and, as a caution, beg to assure the public that every article is sold by the respectable and regular optician as low in price, taking quality into account, as by any of the sale-shop keepers, or puffing Jew pedlars of Petticoat-lane.\*

#### TESTIMONIALS TO CATCH THE UNTHINKING.

The optician is frequently asked how it is that the advertising spectacle venders have the audacity to blazon forth the names of medical men, recommending their spectacles as being of a superior quality to those in general use; the following anecdote will pretty well explain how the thing is managed:—Mrs. —, wanting a pair of spectacles, and wishing to avail herself of the most approved kind, waited on Dr. —, as his name was attached to a spectacle puff put forth in the daily

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\* These gentry are most ably exposed in a work lately published by Mr. Cox, entitled "Spectacle Secrets;" and as many of my friends desire to be informed a little about the testimonial spectacle venders and voice-conductor men, I have annexed a few sketches, which, I believe, will amuse the general reader, and probably protect the eyes, ears, and purse of the public at large.

papers, and requested to know from him what were the particulars of Mr. ——'s spectacles? His answer was, "That he really did not know that they possessed any advantage over ordinary spectacles. The fact was, the spectacle vender had sent his father a pair of spectacles, and accordingly the old gentleman wrote him for answer, that they were very good, and that he could see very clear through them; but," continued the doctor, "the party had no authority to make use of my name, and I have been, upon many occasions, much annoyed by the occurrence, as I am continually asked these and similar questions, and have no remedy. It is entirely without my sanction that my name is used."\*

QUERY.—Would not the old gentleman have made the same acknowledgment to the butcher had he presented him with a quarter of lamb—viz., that it was the best he ever tasted? The old adage is, never to look a gift horse in the mouth.

And had the tailor sent a suit of clothes, the doctor would, no doubt, have said they were the best fit in the world.

Where is the man that cannot obtain testimonials at the same price? But if the public will be gulled in this way, they have only themselves to thank. Really, the honest tradesman has but a little chance of success.

Another medical gentleman was asked by a friend how he could put his name to such a puff? His answer was, "He really did not know how it was; but," continued he, laughing, "we all do some foolish things at times, and that was one of mine."

Some years ago I remember a bricklayer taking up the trade of a spectacle vender, believing it to be more profitable to gull the public than to follow his worldly occupation; and having a good portly appearance, and plenty of impudence, he took a private house at the west-end of

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\* After this manner testimonials are obtained for snuff, gout remedies, and quack medicines of all sorts.



the town. Here he began by advertising spectacles on "unerring principles." When persons waited on Mr.—, for the purpose of purchasing "unerring spectacles," the door was opened by a footman in smart livery. They were then ushered into a private room,\* elegantly furnished and carpeted, where, after waiting the usual time, Mr. — walked in from the adjoining apartment, dressed in his morning gown, morocco slippers, and powdered hair, and assuming the importance of a physician of the first consequence—quite "an Abernethy in his line." This generally had the effect on the old ladies: he was dubbed a very clever man, who could only be consulted from ten in the morning until five in the afternoon, and by this means he got an exorbitant price for the article, perhaps twice as much as would be paid for it at the shop of any of the respectable and regular opticians.

But there is a great deal in the "style"† of doing these things. A gent in the *ear line* once said to me, "Come to the west-end—there you may get money; those east of Temple-bar are all pound-shillings-and-pence men; none ever come to me whose custom I would give ——— for. An elegantly furnished apartment and smart livery servant will do the business?" Really, "the pleasure of

\* This is called the consulting-room, where the unlucky wight is to be victimised. If in the ear or teeth line, the plan is for Mr. — to be found drying his hands on a clean white napkin, as if he had been performing some important operation. There must be at least from three to ten persons in the waiting-room; and, as I have heard it observed, "Keep them there, it will do them good."

† I was assured by a gentleman, that a friend of his sent for a medical man, some portion of his family being unwell. When the doctor arrived, which he did on foot—reader, will you believe it?—they really would not have him; his services were dispensed with because he did not come in a carriage. So much for "style."

being cheated" must be very great to the gullible portion of the public. One would almost regret our inability to enjoy a cheatable disposition.

Another specious plan that these spectacle men have recourse to is, to have glass of rather pink, brown, and yellow colours.\* This they state to be of rare quality, and which is a sure remedy for weak eyes, cataract, absorbents, patent ambers,† &c., &c., entirely their own production, for which they charge the unlucky wight who has been induced to apply to them through some specious advertisement, no less a sum than two guineas, the intrinsic value not being two shillings. But the invention is purely their own; and the impostor asserts that, unless his glasses are used; the party will assuredly go blind. In fact, to such an extent is the system carried, that a gentleman assured me that a lady, a friend of his, who was in rather a nervous and weak state, was duped out of nearly twenty pounds in the purchase of spectacles, ear remedies, &c., &c., that were not of the slightest use. In fact, her nervous malady was increased by the alarm it had created on her mind.

#### THE VOICE-CONDUCTOR MEN.

The following anecdote is tolerably illustrative of the tricks of these advertising spectacle venders and voice-conductor men:—A Mr. —, reading an advertisement of a

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\* This glass is sometimes ground of the meniscus form—viz., convex on the outside, and concave next the eye. (This is what may be termed an outward and visible sign.) This form of glasses, which these gentry make use of as new, was used a century ago, and found not to answer so well as the double convex or double concave forms.

† Unmeaning terms, strung together to deceive and defraud the credulous portion of society.

certain cure for persons of imperfect hearing, went to the party. When Mr. —— entered, he requested to see the voice-conductor or instrument that was to produce the remedy ; but, instead of showing him the thing asked for, the quack observed, “ I see you are deaf.” “ You see I am deaf !” (replied Mr. ——, not conscious he had betrayed his infirmity on his entrance)—“ how do you know that ?” “ Oh !” replied Mr. ——, “ I see you are deaf, by your left eye. You must have a pair of my unerring spectacles to cure you ;” and, thrusting a pair on his face, he said “ De priche ish only——.” I need hardly say that Mr. —— turned on his heel, and left the spectacle quack and his remedies to dupe some one else. “ For,” observed Mr. ——, “ if I cannot hear very well, I believe I can see my way clear enough.”

I cannot conclude this sketch without giving an extract from a work entitled “ A Few Minutes’ Advice to the Deaf. By a Surgeon-Aurist of Thirty Years’ Standing.” Page 163, he says :—

“ The newspapers teem with advertisements of *voice-conductors*, whereby it is pretended the deaf can hear the slightest whisper. I have seen several of the nobility, gentry, middle classes, and even servants, who have been induced to purchase these little tubes, but I have never seen one person yet, among them all, who derived the least advantage from their use ; indeed, unless the case be as I describe,\* a malformation, it is *impossible* they can render any aid.

“ The vendor of these endeavoured to persuade a nobleman, the other day, that by using some of his newly-invented spectacles, the hearing would be assisted. Now,

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\* Here the writer describes the malformation, which he says is of very rare occurrence, and states, if there be malformation, a model of the ear, taken while the ear is held in such position that the patient can hear, and upon which the tubes should be formed, can alone be productive of either comfort or increase of hearing.

the only manner in which glasses can assist the hearing is, that when the sight is defective, persons do not see clearly the motions of the speaker's mouth;\* but if the power of vision be improved, the deaf person, who, it is well known, understands much that is said by the motion of the speaker's mouth, is able to see those motions more distinctly, and, as a natural consequence, to understand better what is said. An illustration of this may be seen at the Deaf and Dumb Asylum, where the master, placed at one end of a long room, speaks in a whisper to a person, totally deaf, at the other end, and the latter repeats every word as uttered (having been taught mechanically to speak) without ever committing an error. Upon the same principle it is, that looking through a good opera-glass at actors speaking upon the stage, or orators at a public assembly, the sense of hearing appears much more acute; whereas, the power of audition is not improved—it is the more perfect vision of the speaker's mouth which enables the speaker accurately to develope and understand the words as they are spoken. But when a man *pretends* that, by any peculiar form, colour, or manufacture of glasses, he can aid the sense of hearing beyond that of assisting the organ of sight, it is a *gross attempt* to impose upon the credulity of the afflicted. There may be, and no doubt are, various opinions as to the utility of different coloured glass for the formation of spectacles; but it is universally acknowledged, that there is nothing so comfortable to the eye as pebbles. In the first place, they do not lose their polish and transparency, or become scratched by use, as all kinds of glass do, and so injure the eye, by refracting rays of light; and in the next place, from their natural *inherent* coldness, they preserve the eyes from inflammation, if even used for a considerable time.

“The son of the person who has the care of the plate at the Duke of Wellington's, a young man, a servant out of

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\* This can only apply to the party should they be short-sighted, as described in p. 12.

place, was induced, by the advertisements in the papers, to purchase a pair of these '*voice-conductors*,' for which he paid two guineas, intrinsically worth about two or three shillings. Finding them of no use, he came to me as a gratuitous patient. On examination of the ears, I found considerable ulceration of the auditory passage, and fungous granulations in one side. By proper treatment, I soon restored the parts to a state of health, and the sense of hearing returned. The young man then showed me these instruments, and a prescription the vender of them had given to him—viz., one poppy head, quarter of an ounce of camomile flowers; to be boiled in two quarts of water till reduced to one quart; add two table-spoonfuls of vinegar, three ditto of brandy, four ditto of elder-flower water, four ditto of rose-water: steam the ear every night with this, and place the tubes into the ears. Now, the introduction of the tubes in such a case, and this steaming, kept up the inflammation, and probably the young man would have become irrecoverably deaf if the plan had been continued. The same prescription is, I understand, very generally given with these instruments, and the venders have the consummate effrontery to call themselves '*aurists*.'"

A friend of mine in a large newspaper establishment assured me that one of the worthies who advertise very extensively, professing to cure every species of deafness, was himself as deaf as a post. He therefore presumed that the party never had recourse to his own remedies, no doubt considering them "all my eye."

A gentleman related to me the following, which had occurred to himself:—he was induced to purchase two pairs of steel spectacles from one of the advertising men. When he got home he found them not to answer his purpose, and was naming this to a friend, who, among other inquiries, asked what he paid per pair, and upon being informed two guineas, he immediately pulled out of his pocket an infinitely superior pair, which he had purchased of a first-rate London optician for 14s. On this, the former gentleman went back, very indignantly, to inquire the

cause of such an immense overcharge, observing to the vender, "What are they, are they glass?" "No," was the reply. "Are they pebbles or crystal?" "No," said the man. "No!" replied the gentleman; "then what are they?" "Ah!" said Mr. —, "dat is de schecret you wants to know; but I shall not tell you; that it is my schecret—all the opticians wants to know what I makes my spectacles of, but I will not tell them."\* At this the gent grew in a sad rage, but all to no purpose—he had paid his money, and the spectacle vender rang the bell and retired into another room, while his assistant very politely bowed the purchaser to the door, and wished him good morning.

These sketches are merely given as a sample of the tricks of the whole tribe of testimonial spectacle quacks and voice-conductor humbugs. Hundreds of other instances might be given, but suffice it to say, that these are selected to put the credulous and unwary part of society on their guard. At the same time, I take the liberty of saying a few words to the mistaken economist, who fancies every article cheap if it comes to little money. To such an extent has the term cheap been carried, and so much has it become the practice of manufacturers to make the worse appear the better article, that I believe I may fearlessly assert that it is not only difficult, but in some cases almost impossible, to get a sterling and well manufactured article. It is no uncommon thing to hear a shopkeeper say, "I cannot keep such and such goods, my customers will say they are so dear; I know they are of the best quality, but I cannot get the price." This evil applies to spectacles as much as to any article of manufacture; spectacles are made, as may be truly said, by wholesale, by the gross—

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\* Mr. Cox justly says, there is not any material in existence besides pebble and glass, which is calculated for optical purposes. The pretended improvement—pellucid lenses, refractive transparencies, patent amber, crystal preservers, &c., are new-fangled terms, coined to entrap the uninitiated.

ay, by the basketful, from the most inferior material, and with as little regard to accuracy as there would be in loading a cart with rubbish, and all for the purpose of selling cheap; or in other words, to supply the sale-shop keeper with goods by which he may realise a large profit, while he deceives the wearer or consumer, and robs the fair and legitimate maker, who has the desire to keep his reputation and to make only the best articles, while at the same time he receives a fair remunerating price for his talent and labour.

There is also a very ably written article in the *Dispatch*, of Sunday, March 14, 1841, headed "The Dentists and their Dupes." I feel desirous of giving an extract, as it applies to the foregoing remarks, but find that I have extended my little volume far beyond the limit prescribed by the price, as well as probably levied a greater task on my reader than I ought.

Suffice it to say, that this class of impostors are alike most shamefully plundering the credulous part of the community under every disguise of name and character, and are only supported by those who never think for themselves, or are allured by their specious advertisements, elegantly furnished apartments, &c.; and were I to relate one tithe of the tricks of the EYE, EAR, and TEETH QUACKS I should fill a volume.

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## APPENDIX.

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IN the preceding treatise I have spoken chiefly of the treatment of the eyes under those defects and imperfections which arise from natural causes, and produce long and short sight, and which may be relieved by the adoption of spectacles suited to the several cases. There are, however, many other particulars relative to the preservation of the eyes in a sound and healthy state, whether spectacles are employed or not, in which the individual himself is alone concerned, and an ignorance or neglect of which not only renders a recourse to spectacles necessary at a much earlier period of life than they would otherwise be required, but in many cases induces derangement and disease in the eyes of an unpleasant and sometimes obstinate character.

As the proper state of the visual faculty will depend greatly on daily precaution and care, the following simple directions may not be considered as too minute :—

We should never sit exposed to a strong blaze of gas-light, nor in absolute gloom, as any violent contrast tends to weaken the sight. When reading, writing, or working, particularly in spectacles, the light should be placed on one side ; in writing, the left is to be preferred, as the glare of light falling on the glasses soon fatigues and dazzles the eyes.

The long-sighted should use themselves to read with rather less light, and somewhat nearer the eye than they naturally like ; whilst those who are short-sighted should use themselves to read with the book as far off as possible ; for, as the eye is an organ that will soon accommodate itself to habit, both descriptions of sight would be improved, while a contrary course would increase the imperfection.



On first awaking in the morning, the eyes should not be exposed to a sudden glare of light, as such transitions are at all times injurious, and more particularly after the repose which the eyes have enjoyed during sleep. This may be in some degree obviated by not allowing the bed-chamber to be too much darkened during the night, and by having the window-curtains of a green colour.

Much inconvenience, and sometimes inflammation, arises from the common custom of rubbing the eyes on first waking. If this is felt to be necessary, from itching or stiffness in the eyelids, it should be done gently by a wet finger, if there is any difficulty in opening them.

The light admitted into the apartment in which we usually sit, particularly when employed in reading, writing, working, or any other occupation that tries the eyes, should be steady and uniform. All glaring reflections from white walls, window-blinds, &c., should be avoided. The curtains of the windows should be drawn up when either the doors or windows are opened for air, as their blowing about causes a dazzling light more injurious than the direct rays of the sun itself.

As all vivid light falling on the eyes is very detrimental, the lining of hats and bonnets should be of some softened shade of blue or green, but not of red, pink, or white, which, however they may improve the complexion of the fair wearer, will not fail by their reflection to do the eyes an injury for which no beauty can compensate.

All tight clothing, particularly round the neck, should be avoided, as, by impeding a free circulation, it induces a flow of humours to the head, and often occasions inflammations of the eyes.

Care should be taken to avoid as much as possible walking or riding during high winds in dry weather, which raise clouds of dust extremely prejudicial to the eyes.

To those who do not employ the wire gauze guards or blue glasses already mentioned, I would recommend washing the eyes frequently with cold water, fresh from the spring if possible, which will not only free them from any

dust that may have been collected, but destroy any symptoms of inflammation. There are instances sometimes of high winds during summer, which produce a sense of dryness and stiffness about the eyes, with a difficulty in opening and shutting them, and the eye-lids become red and inflamed. In these cases cold water alone is not sufficient, but certain relief will always be found in the application of the following simple lotion :—

Take of rose-water, half-a-pint; gum arabic, one drachm; and fifteen drops of the acid of litharge of gold; mix them, and bathe the eyes with a soft rag.

In order to relieve the eyes during the labour of writing, the light should be so disposed during the day as to come in obliquely over the left shoulder.

In this situation of the light, by varying the position of sitting or standing at pleasure, and by having a rising desk or table high enough for that purpose, a long-continued application may be endured without serious inconvenience.

In reading, the book or writing should never be held behind the light, as the rays falling directly on the paper cause a glare very hurtful to the sight, and this will be proportionably increased as the paper is whiter, and the print or writing finer.

Some artists, particularly watch-makers and engravers, are compelled to use magnifying glasses at their work, the injurious effects of which are always visible sooner or later; and what adds much to the danger is, that watch-makers fix them under the eye-brow by a strong contraction of the muscles, which not only causes fatigue to the eye, by the constant shifting of the point of view, but often occasions inflammation both in the lids and the eye itself, by preventing the free circulation of the blood. In order partially to relieve this, those who employ magnifiers should always hold them in the hand, or have them mounted on a jointed stand, with ball and sockets, or such species of frame as shall keep them in the same position during the whole period of their application. My new compound magnifier for engravers will be found very desirable, as it

enlarges the field of view, shows the lines straight, and prevents that dazzling glare which at all times attends the use of the double convex lens of great power.

In the employment of cotton-spinners there is a fine dust dispersed almost imperceptibly from the material which frequently produces cataract, inflammation, &c. To such, and particularly to carders, I would recommend frequent washing of the eyes with cold spring water; and where this does not afford relief, the application of the lotion before mentioned.

Lastly, I would recommend that all workmen who are employed on bright substances, such as copper and steel-plate makers and engravers,\* should regulate their labour so as to be employed during the evening on unpolished substances, such as are not very bright.

Having thus briefly stated some of the evils attending certain employments, and the best means of avoiding them, I shall, in conclusion, give a few plain directions in those cases of accident which frequently occur.

One of the most common circumstances which happens to persons in all situations of life is that of dust, sand, powders, and other foreign matters getting into the eye. In general cases, where the powder or dust is innocent, the simple act of opening and shutting the eye in a small wine-glass or eye-cup of cold spring water will be found to remove it; but when strong snuff, pepper, sharp sand, lime, or other acid or cutting matter has got into the eye, it will be better to call in medical advice, as by injudicious treatment serious inflammation may ensue.

When the eye has been stung by a wasp, bee, or any other insect, the sting should be removed, if left behind,

\* I have lately found the light blue glasses of thirty-six inches focus very desirable for examining the surfaces of bright polished steel-plates, as they require very minute inspection. The above colour softens the bright glare, and enables the artist to pursue his occupation with greater facility, and, at the same time, preserves his sight.

with a small pair of tweezers, and a piece of brown paper soaked in vinegar and water, with a little salt, laid over the eyelid, and secured by a slight bandage, which will remove any swelling that may remain.

When a blow or bruise has been received in the region of the eye, if the eye itself and all the neighbouring parts are violently inflamed, which generally happens when the blow has been on the eye itself, surgical assistance should be immediately procured; but if the accident is accompanied by no pain or sickness, which always indicates the loss of sight, then relief may be obtained by the application of the following decoction:—

Take two drachms of rosemary leaves, a quarter of a pint of red wine, and an equal quantity of boiling water; let it infuse for a quarter of an hour, and then strain it through a fine piece of linen or muslin.

With this the eye should be frequently bathed in a tepid state, which will in general subdue the inflammation in a few hours. This treatment will also be found generally sufficient, in cases of cold, and any slight inflammation in the eyes.

In conclusion, allow me to observe, that the remarks contained in this little treatise are the result of observation; and should they afford any satisfactory intelligence, and become useful to the reader in directing him in the choice of spectacles, and assisting him in the preservation of his sight, it will become a source of much satisfaction to me, and my labours will be fully repaid.

FINIS.

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\* \* \* This lens may also be used for viewing large flowers, &c.

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